

Daily GLOWBUGS

Digest: V1 #76

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%%

Subject: glowbugs V1 #76

glowbugs

Wednesday, July 16 1997

Volume 01 : Number 076

Date: Tue, 15 Jul 1997 09:29:39 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

Subject: Re: BA/GB "net"

> No more Big Bertha's or pairs of 813's.

Well, Big Bertha has a nice hefty variac throttle control on the B+ line. She does nicely at anywhere from about 25 watts up to 500 watts, depending upon how heavily her throttle is twiddled. 813's idle at 25 watts and barely yawn....(:+)}..... something to be said for a single HV B+ line and all else run from the dropping resistor strings off that line (typical of many marine rigs of that era). That works out to about 250vdc on the plates/screens of the 807 osc/buff and pair of 813 finals. Works FB OM. Something to be said for 1938 tech!

73/ZUT DE NA4G/Bob UP

Date: Tue, 15 Jul 1997 09:34:36 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

Subject: Re: Indy Hamfest and T-Bar Bug

> Hi!

>

> Well, I went to the Indy Hamfest yesterday; didn't meet any list
> members as far as I recall, but I did pick up a nice sunburn and still
> coping with a *massive* headache from too long in the bright sun. :)

Sun ahh, yes..... I get regularly nuked at the Shelbyfest in the fall.

> A Les Logan Speed-X bug with an unusual yoke--it's got a nice big
> T-bar, and a round hole through which the arm passes, as if Les had been

> getting telepathic influence from Mac & T.A. Co. Plating on the yoke is
> flaking *badly* and there are a few cracks in it at the far ends of the
> T-bar. (Attn serious key collectors: is it kosher to have this replated?
> Is it *safe* to do so with the observed cracks?). Gave \$75, which seemed
> about right.

If memory serves me correctly, that T-Bar was a design to allow the bug
to be rolled over 90 degrees and used as a straight key. You might try
it sometime, if that is the correct T-Bar design. It was a neat design
ploy for straightpumphandlers.

73/ZUT DE NA4G/Bob UP

Date: Tue, 15 Jul 1997 10:27:00 -0400 (EDT)
From: EWoodman@aol.com
Subject: Re: Fw: 160 and 80 meter xtals

This sounds good to me. My two main transmitters have vfo's but my little one
and two tube homebrew rigs use crystals (tough situation when all you have
are three or four tv rocks!) I've just started building a 160M vfo for an AM
rig but would like some 160 crystals for a more compact (and simpler) rig.
Anyone have an interest in one freq for 160 AM as well as the cw freqs? I'd
really like to see at least one AM freq included as long as there are others
interested. Same for 80M. If no one is interested in
AM.....well, just forget I mentioned it.

I'm interested no matter what the decision turns out to be.

Eric KALYRV

Date: Tue, 15 Jul 1997 12:16:01 -0700
From: Adam Liette <kb8ydx@geocities.com>
Subject: New Net Freq

Hi agn. I don't know abt anyone else, but I listened around 7117
(one of the proposed Net freq's in the Novice Band)and couldn't believe all
of the noise! I called CQ and just barely heard a guy calling back. I
didn't even get his entire call. When we get too
far into 7120 to 7125, there's a huge amt of SWB QRM.
Anywhere else in the band would be perfect. (For me).

Also... If anyone wants an extra qso and can slow down to abt 8-10wpm, I
should be listening on 7107 abt 1:00 and maybe abt 5:00
(if I remember that long).

I have a question abt our Net Freq, when is the net and what Freq will the
next one be on? I've never been in a CW net and looking
foward to trying it out.

See Y'all Later!

Adam Liette
URL:<http://www.qsl.net/kb8ydx>
E-Mail:kb8ydx@geocities.com

Date: Tue, 15 Jul 1997 11:09:01 -0700 (PDT)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: New Net Freq

> Also... If anyone wants an extra qso and can slow down to abt 8-10wpm, I
> should be listening on 7107 abt 1:00 and maybe abt 5:00

I find 7107 to be quieter here than 7117 also.

Ken W7EKB

Date: Tue, 15 Jul 1997 11:16:24 -0700 (MST)
From: Jeff Duntemann <jeffd@coriolis.com>
Subject: Re: Crystal blanks

At 09:57 AM 7/15/97 -0700, James H. Haynes wrote:

>Just look in the January 1935 QST - it tells how to make a machine for
cutting

>your own crystal blanks, hi.

I've often thought that if I had the time I would try cutting a slab of quartz and making it oscillate. A diamond saw is required, and while stiff from a cost standpoint, you can buy them from machine tool supply houses. I have a couple of diamond wheels designed for use in surface grinders. I spin them on an ancient 1/4 hp motor to shape carbide tool bits for my lathe.

One interesting line of research for people of our persuasion, given some diamond cutting tools, would be to see how *big* a crystal we could cut and make oscillate on one of our frequencies. In other words, could we create a crystal that would work in a 1KW pierce oscillator without exploding? I'm not saying this is "best practice"--but it would be a wild thing to have on your ham history, kind of like a plate modulated HF kilowatt...mobile.

I would guess that there are physical constraints here...that above a certain physical size, a crystal simply won't wiggle at HF.

Once I retire, I may do this, though the project list is getting long indeed.

- --73--

- --Jeff Duntemann KG7JF
Scottsdale, Arizona

Date: Tue, 15 Jul 1997 14:55:49 -0400
From: Roy Morgan <morgan@speckle.ncsl.nist.gov>
Subject: Re: Fw: 160 and 80 meter xtals

At 10:27 AM 7/15/97 -0400, you wrote:

>This sounds good to me.

Me, too. I'll be glad to get some rocks for 160 AM operation.

The Valiant awaits the winter season!!

Keep em Glowing!
Roy, K1LKY since 1959

- -- Roy Morgan/Building 820, Room 562/Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 morgan@speckle.ncsl.nist.gov --

Date: Tue, 15 Jul 1997 14:05:37 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
Subject: Re: Crystal blanks

Hi, Jim!

On Tue, 15 Jul 1997, James H. Haynes wrote:
> Just look in the January 1935 QST - it tells how to make a machine for
> cutting your own crystal blanks, hi.

:) Oh, 'tis a sad, sad tale of which I must sing:

Cutting the quartz is trivial; there are likely better ways than an old-fashioned muck saw and in any case, with the proper parts on hand, slapping one together is a less than one-weekend project.

No, the *trick* is cutting it at the proper angle! As near as I can gather, doing so with a real hunk of shiny rock in the real world (as opposed to the clean hexagonal prisms in Handbook illustrations) is half science, half art, and three-quarters near-religious inspiration. Since the cut determines if we get a super-stable rock, or the slope and direction of the tempco, or just some stuff that looks like frosted glass and won't quiver, that's where the expense and difficulty comes in.

The knack *can* be learned, hundreds of folks did, but I doubt it can be taught; what it takes is time and good supply of raw quartz. Both of those are probably in short supply for a small commercial outfit, especially considering the small increase in income such effort would likely bring compared to the price of buying blanks from somebody who can saw them out en masse. 'Specially since they're nice stable AT-cut; X and Y are middlin' straightforward but AT is a pretty critical angle.

Oh, I *wish* 'twere simpler (shux, I wish you could still buy "doorknob" holders). But 'tain't (and ya can't). One never knows what might develop as time goes by, though!

73,
--Bobbi

Date: Tue, 15 Jul 97 15:10:37 EDT
From: jkh@lexis-nexis.com (John Heck)
Subject: Re: Crystal blanks

Jeff,
You doesn't hafta have a diamond saw. The '35 QST article uses carborundum dust.

Wherein hell would a '35 ham get a diamond saw!!! ;^)
John Heck

>
> At 09:57 AM 7/15/97 -0700, James H. Haynes wrote:
> >Just look in the January 1935 QST - it tells how to make a machine for
> cutting
> >your own crystal blanks, hi.
>
> I've often thought that if I had the time I would try cutting a slab of
> quartz and making it oscillate. A diamond saw is required, and while stiff
> from a cost standpoint, you can buy them from machine tool supply houses.
> I have a couple of diamond wheels designed for use in surface grinders. I
> spin them on an ancient 1/4 hp motor to shape carbide tool bits for my lathe.
>
> One interesting line of research for people of our persuasion, given some
> diamond cutting tools, would be to see how *big* a crystal we could cut and
> make oscillate on one of our frequencies. In other words, could we create
> a crystal that would work in a 1KW pierce oscillator without exploding?
> I'm not saying this is "best practice"--but it would be a wild thing to
> have on your ham history, kind of like a plate modulated HF kilowatt...mobile.
>
> I would guess that there are physical constraints here...that above a
> certain physical size, a crystal simply won't wiggle at HF.
>
> Once I retire, I may do this, though the project list is getting long indeed.
>
> --73--
>
> --Jeff Duntemann KG7JF
> Scottsdale, Arizona
>
>

Date: Tue, 15 Jul 1997 19:20:57 +0000
From: Sandy W5TVW <ebjr@worldnet.att.net>
Subject: Signal Generators

I have gotten requests from time to time on 'alignment'
RF sources to help keep the receivers tuned up. I have several
signal generators I use or have used. For something with a calibrated
output level, I prefer my General-Radio 1001. It is big and heavy!
Second choice and a close second is the surplus URM-25D/E/F
series. They are lighter, although the frequency calibration is not
quite as accurate as the General-Radio instrument.

For a very versatile unit and something that the frequency
can be calibrated to agree VERY closely to what is marked on the
dial, my pick is the Hickok 288X. It is also a sweep generator, has
a crystal source of 1 Mhz and 100 khz., an audio source of 0-15 khz.,
and an AC "Output meter" calibrated in db and volts. The RF
output voltage is NOT calibrated, but for general alignment use
it is very good value for what they can be had for. I have seen
them at swapfests for as cheap as \$10-15 in "unknown" condition.
(The "I never tried it", or "It worked years ago last time I plugged
it in!" stories usually given at this price!)

For a very simple and light instrument, the EICO 324 is my

first choice. It's a Spartan unit, but very useful if you don't have access to anything else! The calibration is reasonable enough, and the attenuator works fairly well. I prefer it over the Heathkit SG-6/7/8 models.

Anyway, just a few observations for those looking for something to "peak up" the boat anchor stuff you are trying to bring back from the dead. Whatever you get will probably be due for the same restoration as "BA" receivers, unless someone has already done the job. Expect to pay more for "working" recalibrated/checked test gear.

73,

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"

417 Ridgewood Drive,

Metairie, LA., 70001

ebjr@worldnet.att.net

Looking for: 860 tubes, WL-460 tubes

RK-34(VT-224) tubes, Butternut HF2V antenna

Date: Tue, 15 Jul 1997 16:51:45 -0400 (EDT)

From: **rdkeys@csemail.cropsci.ncsu.edu**

Subject: **Big Bertha Radiomarine's B+ string schematically..... of sorts**

>

> At 09:29 AM 7/15/97 -0400, you wrote:

> >> No more Big Bertha's or pairs of 813's.

> >

> >Well, Big Bertha has a nice hefty variac throttle control on the B+ line.

>

> Bob,

>

> I've just gotten a few more 813's in anticipation of building a rig for
> them. I have recently gotten a supply which delivers about 1000 to 1300
> volts. It runs a pair of 866's, and although the main plate transformer
> has the filament winding built in, I can add a separate filament
> transformer if I wanted to run the plates on a variac.

Well.... thoughts on simple B+ string power supply of CW rigs like Big Bertha:

I use sillycon diodes on my supply --- 0-1500vdc at 1 amp. Unless you really want to stick to periodicity, nuke the tubes in the HV power supply. You will be much happier, and the variac will do nicely for power control. A pair of 16ufd on either side of a 10H 1 amp choke, does nicely for AC filtering. Alas, the beast weighs in at about 200 lbs for the power supply. But, Bertha can sit comfy atop the power supply, if needed, as a floor mount.

> I was wondering what Bertha is getting at full voltage, and what the plate
> current is.

Bertha's output is a pi-L network (instead of the original direct capacitive coupler --- harmonicitis for sure). The output cap is 1500 pf or a little more if memory serves me correctly.

Standard marine rating (very conservative) is 1200vdc at 350 ma on the pair of 813 finals.

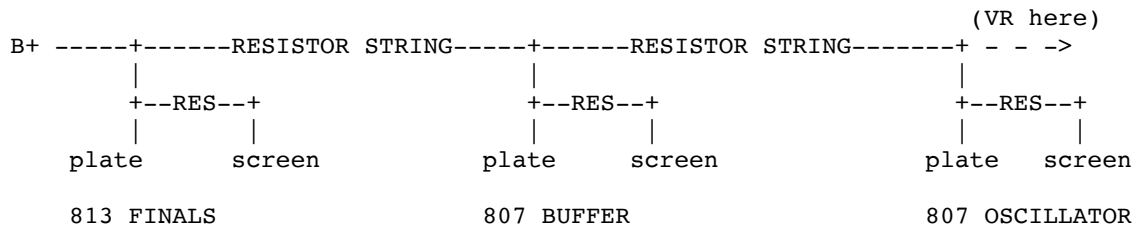
It was maximally military rated at 1500v at about 350ma, again conservative.

I get a half KW at 1250 volts and about 400ma. A 200 watt lamp makes the standard tuning dummy load.

I have run it at 1700 volts and 550 ma, but that is pushing a bit.
It also blows 500 watt Mazda lamp dummy loads at that power.

> >something to be said for a single HV B+ line
> >and all else run from the dropping resistor strings off that line
>
> So there is just the 807 oscillator, another for the buffer? Hmmm. Now
> what resistor would I need to drop the 1300 volts to 250 or so ... and
> where did that big box of ceramic resistors go...?

807 oscillator at 350-400v, 807 buffer at 550-650 volts, and pair of 813's at 1200 volts. Figure the current limiting requirements for dropping the voltage at about 75-100ma load on the oscillator and about 200-125ma load on the buffer. The screens also drop from where the voltages hit the plates. Big Bertha Radiomarine uses a potfull of 5000 ohm 5 watt carbons to do the divider network, although I have had to replace a few with aging, with glass or ceramic resistors. Sort of, schematically.....



It works quite well on CW, and does not require a stable power supply for 160/80M operation. On 40, it requires careful tuning for stability, if I don't want to go to the trouble of hooking up my VR tube regulator on the oscillator. On 40 and above a VR string on the oscillator side of the last resistor string may be used, but was not originally included. If you use the VR regulator on the string, it will drop out at about 1000 volts, which is fine, usually, or just pull the two VR-150 tubes.

Note that screens are self regulating when run off the B+ line, and that the B- line is the keying point of all stages at once (effectively it is cathode keying). Fixed bias resistors are used on the grids. A keying grid bias resistor taken off the B- line to B+ line provides a touch of bias on the keying line for quick turn on and off under QRQ keying. A small key thump filter of 1uFd and about 500 series ohms across the keying relay cures any clickitis. I added a second mfd to make the keying a tad softer than usual.

That is about as simple as it gets!

73/ZUT DE NA4G/Bob UP

Date: Tue, 15 Jul 1997 16:51:42 -0400
From: "Ornitz, Barry" <ornitz@eastman.com>
Subject: RE: Crystal blanks

James Haynes wrote what I hope was a joke:
>> Just look in the January 1935 QST - it tells how to make a machine for
>>cutting
>> your own crystal blanks, hi.
>
>That is, if you really want to drive the prices sky-high. Modern cutting
>machines achieve a far greater yield of usable blanks than the old machines
>ever did.
>Considerable improvements were made as a result of technology fallout from
>cutting silicon wafers. Modern crystals are essentially all made from
>synthetically grown quartz. In fact, if you go to virtually any gem and
>mineral show, you can buy the defective cut synthetic quartz crystals
>inexpensively (about \$10 for a half crystal about an inch wide and six inches
>long). I have several in my collection.
>
>I know that colored quartz is readily available (smoky quartz, amethyst), but
>the thin sections needed for radio crystals would show little if any color.
>I wonder how heavily quartz can be doped with cobalt or chromium and still
>maintain its piezoelectric properties? Such crystals would look quite nice
>as plated crystals in clear glass cases!
>
> 73, Barry L. Ornitz WA4VZQ ornitz@tricon.net

Date: Tue, 15 Jul 1997 21:43:19 -0500
From: "Claton Cadmus" <aplitech@spacestar.net>
Subject: 812 what do to???

I wrote this to the list on 7/1 but I didn't see it reflected and didn't receive any replies so I will try again.

- -----
I came across this 812 at a hamfest and it followed me home! Nice 4 amp filament! Any idea's what I might do with it, if it works? If it don't?

- ----
73 de KA0GKC Claton Cadmus
E-mail cla@spacestar.net
If you live in Minnesota check out this webpage!
<http://www.spacestar.net/users/aplitech/mnqrp/>

Date: Tue, 15 Jul 1997 23:04:48 -0500
From: Conard Murray <ws4s@InfoAve.Net>
Subject: Re: 812 what do to???

Claton Cadmus wrote:
>
> -----
> I came across this 812 at a hamfest and it followed me home! Nice 4
> amp
> filament! Any idea's what I might do with it, if it works? If it
> don't?
>

The 812 is a triode very similar to the 811. It has a lower mu and the curves are a bit different (don't try zero-bias with this one) but it is pretty close. It is a nice tube for class C operation with a bit of negative grid bias. It will make a decent Class C PA for you in the 25 - 150 watt class depending on the B+ you choose. Any class C triode hookup will work with the 812 so let your imagination run rampant and see what solidifies.

The book says max plate voltage is 1500 volts and max plate current is 150 mA. Mu is 29 and max grid current is 35 mA. Plate dissipation is 55 watts. The table suggests at 1250 volts on the plate and -125 volts on the grid will give you 120 watts out for 6 watts input.

Have fun!

ZUT!

de Conard WS4S

Date: Tue, 15 Jul 1997 21:42:40 -0700 (PDT)

From: Ken Gordon <keng@uidaho.edu>

Subject: Re: 812 what do to???

> -----

> I came across this 812 at a hamfest and it followed me home! Nice 4 amp
> filament! Any idea's what I might do with it, if it works? If it don't?

812 is a low mu 811. Good tube. Would make a nice amp good for about 100 watts out. 55 watts plate dissipation.

Ken W7EKB

Date: Tue, 15 Jul 1997 10:21:30 -0700

From: Ken Lopez <kjlopez@earthlink.net>

Subject: Re: Indy Hamfest and T-Bar Bug

Bobbi,

The T bar is for carrying with the index and middle finger. I don't think it is long enough the work as a straight key like the Mac.

By the way, what does your label plate look like?

Cheers,

Ken, N6TZV

Date: Wed, 16 Jul 1997 11:18:32 +0100

From: "Dobbin" <don@red5.powernet.co.uk>

Subject: cancel subscription

Please will you camcel my subscription.

Thanks

Don

Date: Wed, 16 Jul 1997 09:24:19 -0700 (MST)
From: Jeff Duntemann <jeffd@coriolis.com>
Subject: A 75 watt transformer for ten bucks

Hi gang--

Another boring KG7JF catalog report. The new Surplus Center (formerly Burden's Surplus Center) flyer lists a transformer rated 75 watts output. It's nominally a step-down from either 480 or 240 to 120V, but I know things like that can be used "backwards." However, the writeup implies that the high-voltage side is three-phase.

I'm ignorant of three-phase power theory. Assuming you get three-phase AC out of the 480V winding, what does that imply for a rectifier circuit? The transformer lists for \$9.99. (Item 15-1093.) At a price like that it would be worth some fooling around, as I'm certain you could run a 50w input sweep tube rig off a 75 watt transformer.

Any thoughts?

Surplus Center
1015 West "O" Street
PO Box 82209
Lincoln NE 68501-2209
800-488-3407
402-474-4055

(The rest of the catalog is hydraulics, motors, truck parts, pressure washers, and other macho guy stuff.)

- --73--

- --Jeff Duntemann KG7JF
Scottsdale, Arizona

End of glowbugs V1 #76

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

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Created by **Steve Modena, AB4EL**
Comments and suggestions to modena@SunSITE.unc.edu
